631

JAN 29 1988

I53.2:P19

MANAGEMENT PLAN FOR THE PANOCHE/COALINGA AREA OF CRITICAL ENVIRONMENTAL CONCERN

United States
Department of the Interior

Bureau of Land Management
Bakersfield District

0

gn/CDD

COMPLETED

ORIGINAL

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
P.O. Box 365
Hollister, California 95024-0365

IN REPLY
REFER TO:

Dear Reviewer:

Enclosed for your use is the Final Management Plan for the Panoche Hills/Coalinga Area of Critical Environmental Concern (ACEC). This plan outlines specific on-the-ground management actions for the ACEC, which includes approximately 43,000 acres of public land located in western Fresno County (see Map 1).

Your interest and comments were appreciated in the development of this management plan.

Sincerely,

David E. Howell

David E. Howell
Area Manager

SUMMARY

This plan implements specific land use decisions, as set forth in the Hollister Resource Management Plan of 1984. This plan details specific objectives and planned actions for paleontological resources and rare, threatened or endangered (RTE) species in the Panoche Hills/Coalinga Area of Critical Environmental Concern (ACEC). This ACEC consists of approximately 43,000 acres located in western Fresno County, California. The ACEC designation recognizes important paleontological resources and significant habitat areas for sensitive plants and several RTE animals.

Planned actions to manage paleontological resources include: maintenance of existing ORV designations in the Panoche Hills area, guidelines for surface disturbing activities, stabilization where fossil remains are threatened by natural erosion, and accommodation of research requests by qualified individuals or institutions. Planned actions for the management of RTE species include: maintenance of existing ORV designations in the Panoche Hills area, guidelines for surface disturbing activities and acquisition.

All actions will be monitored to assess how well they meet the stated objectives of this activity plan and the more general goals of the Hollister RMP.

RECOMMENDED BY:

Scott R. Florence 3/18/87

Resource Staff Leader, Hollister Resource Area Date

APPROVED BY:

David E. Howell 3/19/87

Area Manager, Hollister Resource Area Date

Robert D. Rheiner Jr. 3/25/87

District Manager, Bakersfield District Date

TABLE OF CONTENTS

Page

Summary i
Table of Contents iii
List of Maps iv

MANAGEMENT PLAN

Introduction 1
  Purpose and Need 1
  Relationship to Existing Activity Plan 2

Area Description 3

  General Features 3

    Topography 3
    Climate 3
    Geology 3
    Soils 4

  Resource Values and Uses 4

    Vegetation 4
    Sensitive, Rare, Threatened or Endangered (RTE) Species 5
    Range (Livestock Grazing) 7
    Fire History 7
    Recreation 8
    Paleontological Resources 8
    Minerals 9

Objectives 10

  Paleontological Resources 10
  Sensitive, Rare, Threatened or Endangered (RTE) Species 10

Planned Actions 10

  Paleontological Resources 10
  Sensitive, Rare, Threatened or Endangered (RTE) Species 11

Appendices

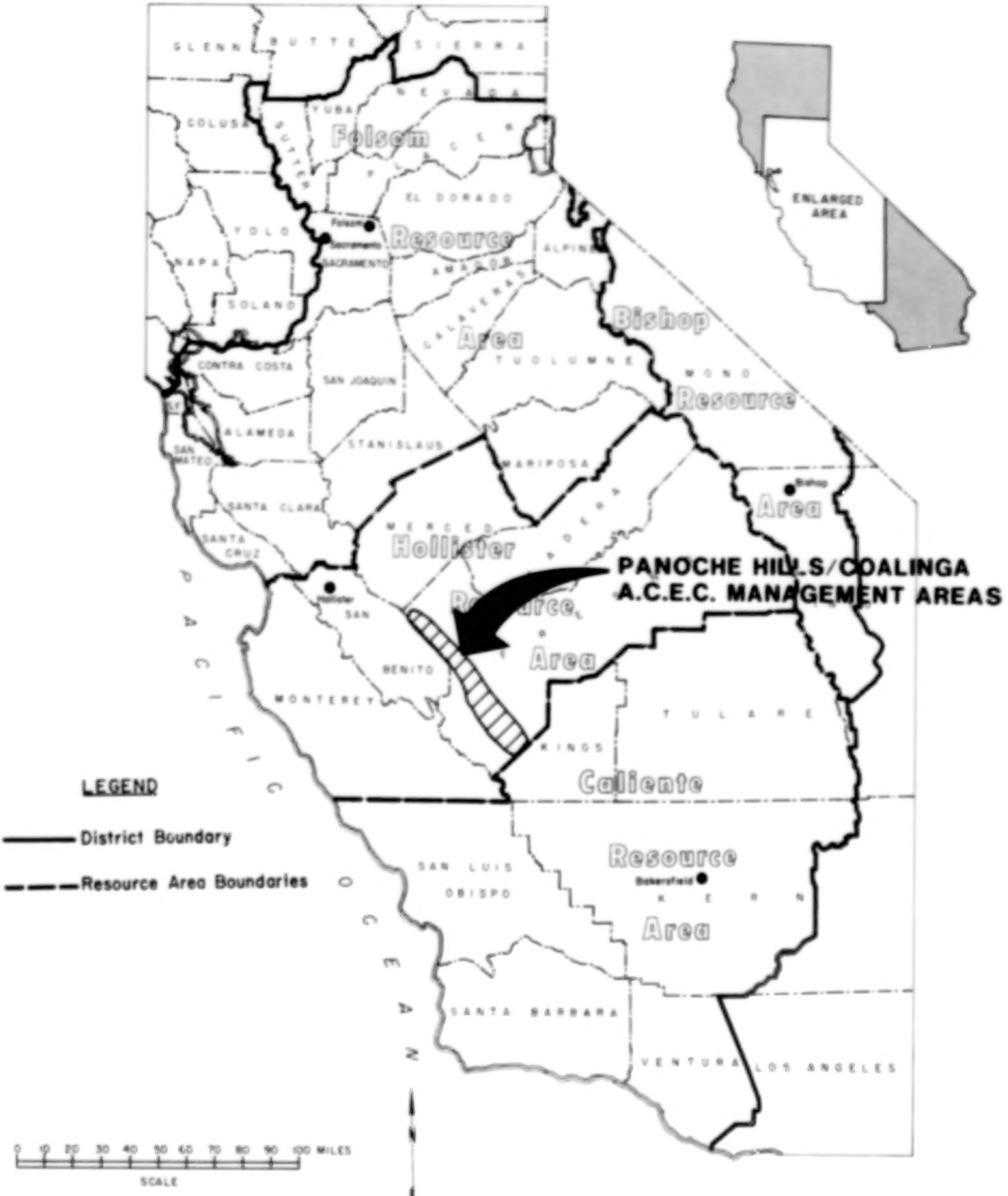
  1. Monitoring 15
  2. Paleontological Permit Qualifications 18
  3. ACEC Legal Descriptions 21

References 25

List of Maps

Map 1 - General Location Facing pg 1
Map 2 - Panoche/Tumey Hills Sub-unit Following pg 25
Map 3 - Ciervo Hills/Monocline Ridge Sub-unit " " "
Map 4 - Coalinga North Sub-unit " " "
Map 5 - Coalinga South Sub-unit " " "

LOCATION MAP
HOLLISTER RESOURCE AREA
Bakersfield District



PANOCHE HILLS/COALINGA
A.C.E.C. MANAGEMENT AREAS

INTRODUCTION

Purpose and Need

Upon approval of the Hollister Resource Management Plan (RMP) in 1984, two Areas of Critical Environmental Concern (ACEC) were designated in the Panoche Hills and Coalinga areas (see Map 1). These were the Moreno Paleontological (#CA01902) and the Panoche/Coalinga RTE (#CA01903) ACECs. These designations were made in recognition of the presence of important paleontological resources, and significant habitat areas for sensitive plants and several rare, threatened or endangered (RTE) animals. As the ACECs cover overlapping areas, it was decided to prepare a single management plan to address both, herein referred to as the Panoche Hills/Coalinga ACEC Management Plan. This plan addresses on-the-ground management needs and actions for both ACECs which are located in disjunct sub-units covering portions of four management areas (See Maps 2-5). The acreages within each management area are as follows:

Panoche Hills - 7,800 acres for paleontology and sensitive plants
5,066 acres for RTE animals
Griswold/Tumey Hills - 2,375 acres for paleontology and sensitive plants
2,520 acres for RTE animals
Ciervo Hills/Joaquin Rocks - 1,236 acres for paleontology and sensitive plans
9,700 acres for RTE animals
Coalinga - 14,660 acres for RTE animals

RMP decisions relative to these management areas consist of the following:

Establish guidelines for surface disturbance appropriate to protect significant RTE animals and paleontological resources. This will include determining appropriate levels of surface disturbance to be used in oil and gas leasing, and mining plans of operation.

Monitor the effects of management activities (predominately oil, gas, mining. and grazing) on significant habitat areas.

Develop stipulations for scientific research and collection of paleontological resources (in concert with individuals and institutions involved).

The purpose of this plan is to present ways in which these resources can be managed and protected. Protective measures will be compatible with, and will not preclude, other uses.

Relationship to Existing Activity Plans

As noted, this ACEC Management Plan is the result of specific land use decisions made in the Hollister RMP. This document will provide specific objectives and direction relative to the more general goals of the RMP.

The subject area, while encompassing four management areas, can be divided into two major blocks:

The Panoche Hills area, which includes the Panoche Hills, Griswold/Tumey Hills, and Ciervo Hills areas.

The Coalinga area, which includes the western edge of the San Joaquin Valley near Coalinga, as well as the Kettleman and Kreyenhagen Hills.

In 1982, the Panoche Hills Management Plan was completed, which covered the Panoche, Griswold, Tumey and Ciervo Hills. This plan provided specific guidance for the management of range, recreation, and wildlife resources in these areas. It did not provide specific guidance for management of paleontological resources or RTE habitat.

At the present time, there is no existing activity plan which covers the Coalinga area.

AREA DESCRIPTION

General Features

Topography

The Panoche Hills area is characterized by steep, rugged terrain dissected by many deep drainages. Slopes average 30-50 percent with many over 50 percent. The ACEC sub-units for RTE animals in the Panoche Hills portion correspond to areas of low relief (raised plateaus). Such areas are uncommon compared to the overall topography and provide important habitat areas for the RTE animals of concern. Elevations vary from 600 feet to 3,234 feet at the highest point in the Griswold Hills.

The Coalinga area is characterized by low, gently rolling foothills and valley grasslands which border the western edge of the San Joaquin Valley. Elevations range from roughly 500 feet to about 2,600 feet.

Climate

The climate is hot and dry in the summer, cool and wet in the winter. Rainfall varies from an average 4-6 inches in the Panoche and Tumey Hills to about 9 inches in the Griswold Hills. Rainfall averages 6-9 inches annually in the Coalinga area.

Geology

The subject area lies within the east-central portion of the Coast Ranges Geomorphic Province, consisting chiefly of alternating layers of marine and non-marine sedimentary rocks such as shale (Moreno formation), sandstone, and conglomerate. These rocks range from upper cretaceous (about 100 million years) to Pleistocene (about 1 million years) in age. The rock units are highly folded and faulted, having been tilted as much as 70 degrees from horizontal in the Griswold Hills. Rocks which crop out in the Panoche Hills, the Tumey Hills, and the Ciervo Hills disappear beneath alluvial sediments of the San Joaquin Valley, to the east. Rocks in the Griswold Hills have been arched upwards in an easterly-trending, domelike feature (anticline) disappearing beneath sediments of both the Panoche and Vallecitos Valleys.

These rocks have a wide range of hardness and strength, being largely highly susceptible to the processes of erosion. The subject area is also located in a highly active seismic (earthquake) zone, as the San Andreas Fault zone lies only 10 to 20 miles to the west.

Soils

Soils of the subject area are generally fine textured and moderately deep (20 to 40 inches) to deep (40 to 60 inches). Miscellaneous areas found within the subject area include Badland, which is steep or very steep barren land entrenched in soft geologic materials and Dune land which are scattered areas of sand-sized particles that shift with the wind. The latter are located along ridgetops in the Monocline Ridge area of the Ciervo Hills.

Resource Values and Uses

Vegetation

The entire ACEC area is predominately grassland characterized by Mediterranean annual grasses such as Red brome (*Bromus rubens*), Rip-gut brome (*Bromus diandrus*), Soft chess (*Bromus mollis*), Wild oats (*Avena barbata* and *Avena fatua*) and various Fescues (*Vulpia* sp.). Common forbs include Filaree (*Erodium* sp.), Clovers (*Trifolium* sp.) and Fiddleneck (*Amsinkia* sp.), etc. Shrub cover over most of the area is characterized by saltbush or quailbush (*Atriplex polycarpa* or *Atriplex spinifera*) which are by far the most important wildlife cover. Also important are Buckwheat (*Eriogonum fasiculatum*) and Mormon tea (*Ephedra viridis*). Junipers (*Juniperus californica*) and Yucca (*Yucca whipplei*) often characterize the higher elevations in the Panoche Hills area.

Some remnants of native needlegrass (*Stipa pulchra*) can also be found in protected places. A unique plant community of Indian ricegrass (*Oryzopsis hymenoides*), Desert needlegrass (*Stipa speciosa*), and other Mohave desert disjunct species can be found on relictual sand dunes in the Ciervo Hills. Selected dune areas have been visited periodically in the last few years for botanical purposes.

Green Fiddleneck (*Amsinkia furcata*), a sensitive plant species (FWS Category 2), also occurs on shale talus in the area (it's habitat roughly coincides with the paleontological areas). Initial populations of the green fiddleneck were recorded in 1982. Through subsequent monitoring efforts, additional populations have been recorded throughout the Tumey Hills and Ciervo Hills areas. In fact, this plant is much more abundant than previously thought.

Aside from the green fiddleneck , three category 2 candidate plants may grow in the Coalinga Management Area. The California jewelflower (*Caulanthus californicus*) is known from 5 historic collections in the Kreyenhagen and Jacalitos Hills. In addition, two populations of the Hoover's wooly-star (*Eriastrum hooveri*) exist within the area of the jewelflower collections. Moreover, Congdon's eatonella (*Eatonella congdonii*) is known from western Fresno County. Although these taxa do not enjoy protection under the Endangered Species Act of 1973, these species are likely to eventually be the subject of a proposed rule.

Sensitive, Rare, Threatened, or Endangered Species (RTE)

There are four RTE species of concern within the ACEC: the San Joaquin kit fox (*Vulpes macrotis mutica*), Federally listed as endangered and State listed as threatened, the blunt-nosed leopard lizard (*Gambelia silus*) Federally and State listed as endangered, the giant kangaroo rat (*Dipodomys ingens*) Federally and State listed as endangered, and the San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), State listed as rare.

As previously mentioned, the ACEC for RTE animal species is divided into disjunct sub-units. These sub-units and the primary species of concern are:

1. Panoche Hills Area

   In the Panoche Hills Plateau area, there are four small giant kangaroo rat colonies, and three recorded blunt-nosed leopard lizard sightings. Antelope squirrels are also frequently sighted in the area. Four separate giant kangaroo rat colonies also exist on public lands in the extreme southeastern portion of the Panoche Hills near the confluence of Panoche Creek and Silver Creek (T. 15S., R. 12 E., S 1/2 Sec. 17, approximately 240 acres). Approximately 300 acres of private land to the immediate south holds one of the largest colonies outside of San Luis Obispo County.

2. Tumey Hills Area

   In the Tumey Hills Plateau area, there are 21 known San Joaquin kitfox dens and two small giant kangaroo rat colonies. Antelope ground squirrels have also been sighted in the area. In a recent general reconnaisance of private lands on the Silver Creek Ranch in eastern Panoche Valley, several large active colonies of giant kangaroo rats were recorded. As only a small portion of the area was covered, there are probably many more. These are some of the largest remaining active colonies outside of San Luis Obispo County. Several blunt-nosed leopard lizards were also observed during recent visits to private lands in eastern Panoche Valley on the Silver Creek Ranch.

3. Ciervo Hills/Monocline Ridge Area

   In the Ciervo Hills area, there are 13 known kitfox dens and two small giant kangaroo rat colonies. Williams and Tordoff recently recorded three kitfox dens and one giant kangaroo rat colony near the southern edge of the ACEC. There are seven distinctly separate duneland soil areas bearing Mojave Desert type vegetation scattered along Monocline Ridge. The total aggregate extent of these areas is approximately 1,000 acres, however, the well-defined, "pure" dune areas probably total less than 50 acres (5-10 acres at each site). San Joaquin dune beetles (*Coecus gracilis*) have been confirmed at five of these sites.

4. Coalinga Area

   In the Coalinga area, there are 46 known kitfox dens (27 of which are located in the Kettleman Hills) and 32 recorded sightings of the blunt-nosed leopard lizard. The Coalinga area has not been inventoried for the presence of the giant kangaroo rat, however, it appears that soil or other conditions may not be conducive to their presence.

In addition to the four vertebrate species of primary concern listed above, two other candidates for Federal listing are known to occur with the subject area. These species are the short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*) and San Joaquin pocket mouse (*Perognathus i. inornatus*).

There are five candidate beetles in addition to the San Joaquin dune beetle that may occur in the area: Ciervo aegilian scarab beetle (*Aegiala concinna*), Doyen's trigonoscuta weevil (*Trigonoscuta doyeni* known only from the Kettleman Hills); molestan blister beetle (*Lytta molesta*), and morrison's blister beetle (*Lytta morrisoni*).

Contract and in-house inventories were conducted from 1979 to 1981 to determine the presence and relative abundance of the kitfox and leopard lizard. In-house inventories were also conducted in 1982 to determine the presence and relative abundance of the giant kangaroo rat and the San Joaquin dune beetle. Wih the exception of periodic visits to these areas for other purposes (i.e., range supervision and monitoring), there has been no systematic follow-up monitoring specific to determining changes in baseline data by the BLM.

Williams revisited giant kangaroo rat colonies in the Panoche Hills area in 1984 and 1985. He noted a general decline in these populations since 1980 that seems to correspond to a general decline in the species throughout its range. The reasons for this decline are unclear. Colonies in the Panoche Hills were never large (averaging 10 to 15 precincts) and are probably extremely susceptible to disease, predation or other disturbances. Localized damage to colonies in the Panoche Hills has been documented as a result of camping and vehicle passage, mining-related surface disturbance and sheep bedding activities.

Malathion spraying by the California Department of Food and Agriculture (CDFA), has been a widespread practice up and down the westside of the San Joaquin Valley for control of the beet leafhopper. A Memorandum of Understanding has been developed between BLM and CDFA where public lands are involved. This practice has also undergone review by the U.S. Fish and Wildlife Service through the Section 7 process. Studies are also being undertaken by CDFA to determine potential impacts, however, the effects on blunt-nosed leopard lizard populations are still unknown.

The widespread use of rodenticides such as 1080 could also be a major influence on endangered species populations in the area, particularly where public lands are intermingled with private lands. Rodents of special management concern are all highly susceptible to direct mortality from rodenticide application. The San Joaquin kit fox is highly susceptible to secondary poisoning through ingestion of contaminated prey. Distribution and abundance of the blunt-nosed lizard and kitfox could also be negatively influenced through declines in small mammal populations. For example, Williams regards giant kangaroo rats as a keystone species in their ecosystem as they are important in the diet of San Joaquin kitfoxes and other predators. Blunt-nosed leopard lizards use the burrow systems of giant kangaroo rats and San Joaquin antelope squirrels will also coinhabit colonies with giant kangaroo rats.

Range (Livestock Grazing)

Portions of the area are currently under grazing lease to 23 livestock operators. Sixteen of these leases are in the Panoche area, while seven occur in the Coalinga region. All leases in the Panoche Hills area are managed under Allotment Management Plans to leave an average of 700 pounds/acre of residual mulch (after grazing). All leases also have established seasons of use that restrict grazing largely to the green forage period. Leases in the Coalinga area are managed largely on a custodial basis. For this reason, season long grazing has impacted RTE habitat in localized areas.

Fire History

Little is known concerning past fire history in the area. There is no doubt that fire occurred at past intervals in this vegetation type, but annual grassland ecosystems are not regarded as fire adapted vegetative types as is chaparral. Non-sprouting shrub species such as saltbush (*Atriplex* sp.), that regenerate primarily by seed, are easily killed by fire. The 60,000 acre Ciervo fire (1979) in the southern Tumey and Ciervo Hills killed an estimated 95-99 percent of all saltbush cover in the area, at least temporarily destroying important wildlife cover. A 6,000 acre fire in the northeastern portion of the Panoche Hills in 1985, also destroyed large areas of saltbush and Mormon tea (Ephedra sp).

Recreation

The planning area currently receives moderate use by hunters during the upland gamebird season (80% of total use). Other recreational activities include sightseeing, birdwatching, picnicking, and astronomical observation. The Panoche plateau area was used heavily by motorcycles until the closure to ORV use in 1970. Some motorcycle trespass and significant demand for opening the area to ORV use still exists.

Paleontological Resources

Existing literature and a recent inventory conducted by C.S.U. Fresno (Staebler, 1981) has shown much of the area, particularly the southeastern Panoche Hills, to be rich in unique paleontological (fossil) values. Associated with the Moreno shale formation, these fossil resources include species from both aquatic and terrestial environments, representative of the especially diverse life forms existing at a time when a vast inland sea covered much of the surface of the area. Some of these species existed nowhere else on earth making this a significant and irreplaceable resource.

Significant fossil species known to exist within the ACEC include Plesiosaurs, Mosasaurs, Hadrosaurian Dinosaurs, Desmostylids, whales, turtles, fishes, and numerous shore-inhabiting mammals. As noted by Staebler (1981), "explanations are still being sought to account for the great extinction of life which occurred at the close of the Mesozoic. The highly fossiliferous Moreno Formation spans that period of transition. The fossil resources in the Moreno Formation in the Panoche Hills offer excellent opportunities for the scientific investigation into the problem of the Mesozoic extinction."

Paleontological investigations have been undertaken periodically in the Panoche Hills since 1937. In the years that followed, investigations were carried out by the University of California, the California Institute of Technology, and the Los Angeles County Museum.

Since 1976, California State University, Fresno (CSUF) has conducted paleontological field classes in the Panoche Hills area.

In 1981 personnel from CSUF, under the direction of Dr. A. E. Staebler, performed a paleontological survey of the Panoche and Ciervo Hills. This investigation, which was done under a BLM contract (No. CA-040-CTO-10), resulted in the identification of numerous fossil locations in both the Panoche and Ciervo Hills areas (Staebler, 1981). Additional surveys were conducted by CSUF in the Tumey Hills during 1982. Although few surveys have been undertaken in this area, initial indications are that the exposures in the Tumeys may be as rich in paleontological resources as the Panoche Hills. CSUF presently holds a paleontological permit, and most recently unearthed a hadrosaurian dinosaur in the Right Angle Canyon area. These materials are currently undergoing analysis at CSUF. The Coalinga and Kettleman Hills areas have not been surveyed for paleontological resources.

Minerals

Major minerals of potential economic value derived from these rocks include oil and mercury in the Griswold Hills area, (the only producing oil and gas leases in the Panoche Hills area occur in the Griswold Hills outside the ACEC sub-units, although much of the area is under lease), gypsum, limestone (marl), sand and gravel (the main deposit in the area is located in the lower reaches of Panoche Creek), and diatomaceous earth in the areas along the San Joaquin Valley.

Oil and gas leasing occurs extensively in the Coalinga area within most of the ACEC sub-units. Federal production of oil and gas is occurring within the following fields: Coalinga, East Coalinga Extension, Coalinga Nose, Jacalitos, and Kettleman North dome. The 1981 Federal production in these areas was 3,952,270 barrels of oil.

OBJECTIVES

Paleontological Resources

1. Protect and maintain paleontological resources in the area.

2. Provide for scientific research of the paleontological resources in the area.

Sensitive, Rare, Threatened or Endangered (RTE) Species

1. Protect, maintain and improve habitat for the Federally listed blunt-nosed leopard lizard and San Joaquin kitfox, as well as the State-listed giant kangaroo rat and San Joaquin antelope squirrel.

2. Protect, maintain and improve habitat for BLM sensitive plant species occurring in the area. Protect and maintain habitat for the San Joaquin dune beetle and Mojave Desert disjunct species (sand dune areas).

PLANNED ACTIONS

Paleontological Resources

1. Maintain the existing ORV designations in the Panoche Hills area-closed to motorcycles, open to four-wheeled vehicles on designated routes from the beginning of upland game bird season to the beginning of fire season (mid-October to late April).

2. Surface disturbing activities such as road construction, ground leveling, mining, or oil and gas exploration and development will be evaluated for potential adverse impacts to the fossil resources. An on-site field exam will be undertaken on all applications within the ACEC. If necessary, protective measures will be taken. Such measures will be useful not only in evaluating oil and gas applications (APDs, etc.), but also in developing mining plans of operations under the 3809 regulations. Not all measures will apply in every situation. Each surface disturbing action will be evaluated on a case by case basis for applicability of the following measures.

- Maintenance of 100' buffer zones around significant paleontological sites (as identified in the report by Staebler).

- Access roads and pipelines should be planned to utilize existing roads and trails or routed to avoid sensitive areas.

-Installation of temporary fences along the margins of pad sites on oil and gas developments to eliminate off-site vehicle impacts to undisturbed areas.

-Relocation of proposed development to avoid impacts to significant paleontological sites.

3. In addition to the protection measures listed above, contract studies could be required if significant sites cannot be avoided.

4. Should natural erosion threaten the integrity of significant fossil resources, efforts will be made to stabilize and rehabilitate these resources.

5. Permit requests for scientific research by qualified individuals or institutions will be accommodated. These Paleontological Collection Permits are issued for a maximum of three years to individuals and/or organizations who meet the minimum qualifications requirements. These qualifications standards, which are presently in draft form, are located in Appendix 2.

Sensitive, Rare, Threatened or Endangered (RTE) Species

1. Maintain the existing ORV designations in the Panoche Hills area (see Paleontology Section 1).

2. Surface disturbing activities such as road construction, ground leveling, mining or oil and gas exploration and development will be evaluated for potential adverse impacts to these resources. An on-site field exam will be undertaken on all applications within the ACEC. Consultations with the U.S. Fish and Wildlife Service, in accordance with Section 7 of the Endangered Species Act, will be conducted if appropriate. If necessary protective measures will be taken. These measures can be separated into pre-development, development and post-development. Such measures will be useful not only in evaluating oil and gas applications (APDs, etc.) but also in developing mining plans of operations under the 3809 regulations. Not all measures will apply in every situation. Each surface disturbing action will be evaluated on a case by case basis for applicability of the following measures.

Pre-Development Protective Measures

- Installation of temporary fences along the margins of pad sites on oil and gas developments to eliminate off-site vehicle impacts to undisturbed habitat.

-Access roads and pipelines should be planned to utilize existing roads and trails. Where new roads are proposed, route to avoid sensitive habitat features such as shrubs, small mammal and rodent burrows and washes.

-Compensation both on-site and off-site: Rehabilitate additional acreage through reseeding, installation of artificial dens, closure/rehab of roads in other lease areas, etc.

-Seasonal restriction for operational activities to minimize vehicle traffic, noise, etc. during sensitive periods such as denning, nesting, etc.

-Formal programs to increase employee awareness of local wildlife concerns emphasizing unique habitat features and values. This is important to the contractor(s) as well as the applicant.

-Maintain unique or limiting topographic features (will vary from site to site).

-No surface occupancy should be considered in critical or sensitive habitat areas.

-Employees and contractors should be prohibited from carrying firearms onto the worksite.

Development Protective Measures

-Where pipelines/steam lines are needed, lay above ground (hang above ground across major washes). Align with roads where possible.

-Size and alignment (or orientation) of pads should be determined to minimize surface disturbance and habitat loss, yet accommodate construction activities (i.e., lengthwise or parallel to existing roads, short side toward sensitive features). Revegetate those portions of the pads not needed for production purposes as soon as possible.

-Waste water should be properly contained and/or removed to a designated disposal site.

-Stockpile topsoil from surface disturbing activities to be used in conjunction with revegetation efforts.

-Maintain buffer zones around sensitive habitat features (minimum 200 feet from active or inactive San Joaquin kitfox den(s), minimum 100 feet from all intermittent steams, 100 feet from dry washes in blunt-nosed leopard lizard habitat and minimum 200 feet from giant kangaroo rat colonies. Fencing will be used if necessary.

-Keep number of roads to a minimum (one to two access points per well).

-Consolidate maintenance activities to reduce human disturbances.

-Fence/cover all existing and active sumps with fine wire mesh to prevent the entrapment of animals.

Post-Development Protection Measures

-Abandonments will be rehabed and re-contoured as close as possible to the original contour and condition. The determination for re-contouring abandoned well sites will consider possible impacts to RTE species. In some cases, where natural revegetation has occurred around the margins of well sites and RTE species are known to inhabit the site, it may be desirable to rip and reseed pads and roads but avoid disturbing naturally revegetated areas by re-contouring.

-Ripping, reseeding and recontouring will be done by the lessee as approved by BLM to all roads, pads, sumps, and all other past surface disturbances (including oil spills from historic operations) not of value to the leasehold operation.

-Reseeding will consist of environmentally compatible plant species (saltbrush) to all disturbed areas within construction zones, as well as any additional locations agreed to for the benefit of RTE species and surface protection from erosion.

-Specifications for seeding will include timeframes, rates of seed application, type of seed.

-Areas to be rehabed should be delineated in writing, by map, and staked/flagged on site.

-If in an active field, rehabilitation efforts should be conducted within one year after construction operations have ended.

-If necessary, fence (or block with physical barriers) revegetated sites from vehicular or livestock access.

-Dispose of all well site debris, including equipment, pipelines, and garbage in in an acceptable manner (this means removal to a designated disposal site for contaminated soil and/or debris).

3. In addition to the protective measures listed above, compensation may be required in the form of on-site or off-site habitat enhancement (installation of guzzlers, conversion of oil and gas wells to water wells, seeding of native shrub species, etc.). Project applicants may also be required to provide funds for purchase of off-site lands.

4. Work with sheep grazing lessees within the ACEC (particularly leases #4386 and #4322) to preclude sheep trailing and bedding activities within 200 feet of sensitive habitat areas (giant kangaroo rat colonies and kitfox dens). Also work with these lessees to preclude the location of sheep camps within 200 feet of these areas.

5. Work with cattle grazing lessees within the ACEC (particularly #4426 and #4322) to preclude salting, or the location of supplemental feed or watering facilities (troughs) within 200 feet of sensitive habitat areas.

6. Work with cattle and sheep grazing lessees in the Coalinga area (particularly #4345) to prevent overgrazing by establishing seasons of use, fencing, control of water, and placement of supplemental feed and salt. The BLM could provide fence materials if funds are available.

7. Items 4, 5, and 6 above, are to be accomplished by on the ground meetings with affected lessees at least annually at the beginning of each grazing season.

8. Predator trapping and rodent poisoning should be precluded on all BLM surface lands in the subject area. The Bureau should work with adjacent landowners and counties to the extent possible to avoid placement of poison on public land. Monitoring for placement of poison on public land should become a high priority.

9. Acquisition of private in-holdings with high value for RTE species should continue to be a high priority. Specifically, acquisition of all Silver Creek Ranch inholdings should remain the highest priority. Initial acquisition efforts should be focused on acquiring remaining portions of the large giant kangaroo rat colony on private lands along Panoche Creek in the extreme southeast portion of the Panoche Hills (see page 5). Continue to work with The Nature Conservancy, the Trust for Public Land, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service to the extent possible. All possible funding sources, including the Land and Water Conservation Fund need to be explored and utilized. Off-site compensation funds, as discussed in section 3 above, may also be used to pruchase these lands.

APPENDIX 1

MONITORING

Paleontological Resources

General observations will be made as a part of routine visits and patrols within these areas. During routine visits and patrols, conflicts with other uses will be documented and specific corrective action taken as quickly as possible.

Specific monitoring actions are summarized below.

Component	Location	Technique(s)	Unit	Frequency
a. Resource damage from erosion and weathering	Panoche Hills Ciervo Hills Tumey Hills	Photo plots, direct observation	Site conditions, impacts	Biennially
b. Site damage from human-caused impacts	Panoche Hills Ciervo Hills Tumey Hills	Photo plots, direct observation	Site conditions, impacts	Biennially

Sensitive and RTE Species

General observations will be made as a part of routine visits and patrols within these areas. During routine visits and patrols conflicts with other uses will be documented and corrective action taken as quickly as possible. Specific monitoring actions as noted in the following table will be repeatable and quantifiable. Monitoring will consist of two phases. The first phase will be to run straight line transects through each sub-unit (minimum of eight per section.) Transects will follow as closely as possible to the original survey routes done during the initial inventories.

Transects will be conducted under optimal temperature regimes (air temperature of 20 - 35° C) to maximize the number of possible blunt-nosed leopard observations. The second phase will be to re-visit any kitfox den(s) or giant kangaroo rat colonies that were previously recorded (in initial inventories) but not investigated while conducting the monitoring transects. In rugged terrain, the transect method will be modified to a survey of ridgelines and washes (mainly in the Ciervo Hills).

Component	Location	Technique(s)	Unit	Frequency
a. Blunt-nosed leopard lizard	All areas, especially Coalinga	Transects (direct observation of animals), occular recon of habitat areas (condition, trends), presence of rodent use	Numbers (relative abundance based on sightings), numbers of rodent burrows, habitat conditions and trends	Biennially (May-June)
b. San Joaquin antelope squirrel	Panoche Hills Tumey Hills, Ciervo Hills	Transects (direct observation of animals)	Numbers	
c. San Joaquin kitfox	Tumey Hills, Ciervo Hills, and Coalinga	Transects (observation of den sites, use and condition), occular recon of habitat (condition, trends) and night spotlighting	Numbers of dens, relative abundance based on den use and individual sightings, habitat conditions and trends	Biennially (June-July)
d. Giant kangaroo rat	Panoche Hills Tumey Hills, Ciervo Hills	Transects (observation of colonies and burrows, use and condition), occular recon of habitat (condition, trends)	Numbers of active colonies, habitat conditions and trends	Biennially (June-July)
e. San Joaquin dune beetle	Ciervo Hills	Sample sand dune locations with wire-mesh screen, note habitat conditions	Numbers (relative abundance), habitat conditions and trends	Biennially (June-July)

f.	Green fiddleneck	Panoche Hills Tumey Hills, Ciervo Hills	Direct observation of habitat areas	Number (relative abundance), habitat conditions and trends	Biennially (during flowering period)
g.	Desert disjunct community (sand dunes)	Ciervo Hills	Direct observation of sand dunes, photo plots at exclosure, note vigor and condition of plant communities	Area covered covered (extent of community), habitat conditions and trends	Biennially

In addition to the monitoring strategies listed above for the species of management concern that are known to occur within the ACEC areas, baseline data needs to be collected on the following species: short-nosed kangaroo rat, San Joaquin pocket mouse, Ciervo aegilian scarab beetle, Doyen's frigonoscuta weevil, molestan blister beetle, moestan blister beetle, morrison's blister beetle, California jewelflower, Congdon's eatonella, and Hoover's wooly-star.

The same techinque used to find the San Joaquin dune beetle may be used to find the Ciervo aegilian scarab and Doyen's trigonoscuta weevil. Sampling should be done during mid-March until July. A sweep or beating net may be used on flowering vegetation to survey for the Lytta species. The time of adult beetle activity is usually in April or May. All beetles are large enough to allow field identification with the aid of a hand lens. Identification must be done by a competent entomologist. Survey techniques for the rodent species and vascular plants would be the same as those listed in the above table.

The overall objective for monitoring actions will be to document habitat and population trends in relation to causative factors such as grazing or other surface disturbing actions. Monitoring data should be reviewed at least biennally to determine whether management actions need to be adjusted.

APPENDIX 2

Paleontological Permit Qualifications

A. Qualifications of Applicant. Applications shall be reviewed to determine whether or not applicant(s) are appropriately qualified for work proposed, except that among criteria in this paragraph, only paragraph 2.a. shall apply to an application filed by the Governor for a permit on behalf of the State (16 U.S.C. 470cc(j)).

1. Organizational Qualifications. Applications must show the applicant's organizational capability to accomplish work of the type and scope proposed by submitting an organizational resume or summary of organizational experience with the following minimum information:

a. Statement of applicant's organizational ability to accomplish the proposed work, including:

(1) Location(s) of facilities and equipment;

(2) Description of facilities and equipment;

(3) Organizational structure and staffing;

(4) Specification of which, and to what extent, facilities, equipment, and staff listed would be involved in the proposed work.

b. Statement of applicant's organizational history in completing type of work proposed, including:

(1) Similar past projects;

(2) Past government contracts;

(3) Selected bibliography of project or contract reports and/or publications resulting from (1) and (2) above:

(4) Previous Federal permits held, effective dates of permits currently in force, and applications pending or planned (the last two items are important for interagency or intrabureau coordination under Section VI.)

c. Other pertinent organizational experience, such as research and special studies.

d. If the applicant is a newly formed entity, any information which might take the place of information requested for paragraphs A 1.1.b. and c. should be provided. In such cases, individual capabilities of personnel will carry greater weight in evaluation of organizational qualifications. Lack of an organizational history should not be the principal factor in a recommendation for permit denial. Applicants who have not previously held a collecting permit will have their initial BLM permit limited to a one year period.

2. Individual Qualifications.

a. Applications must show the name of the individual proposed to be responsible for carrying out the terms and conditions of the permit and otherwise complying with legal requirements applicable to the permitted activity. This individual must be legally empowered to obligate the applicant organization, and must sign the application.

b. Applications must include the name of any individual(s) proposed to be responsible for planning, supervising, and carrying out field projects, including responsibility for evaluations and recommendations of paleontologic materials. For each such individual, information must be included with the application to demonstrate that the individual has achieved the following:

(1) Adequate professional instruction, obtained through:

(a) Formal education resulting in a graduate or professional degree in paleontology/geology; biology/zoology/botany; or

(b) Equivalent paleontologic training and experience, including at least 24 months of pertinent professionally supervised experience with increasing responsibility leading to duties similar to those proposed in the application;

(2) Competence in theory and methods, and in collecting, handling, analyzing, evaluating, and reporting paleontologic data, relative to the type and scope of work proposed;

(3) The ability to plan, equip, staff, organize, and supervise activity of the type and scope proposed;

(4) The ability to carry research to completion, as evidenced by timely completion of theses, research reports, scientific papers, or similar documents;

c. Individuals who do not meet the equivalency or experience criteria in paragraph 2.b. may be exempted from those criteria if they have satisfactorily conducted work, similar to that proposed, under a Department of the Interior permit issued prior to the adoption of these procedures.

d. The same individual may be named under paragraphs 2.a. and 2.b.

APPENDIX 3

Panoche/Coalinga RTE ACEC

Mount Diablo Meridian

	Acres
T.14S., R.11E.,	
Sec. 7, lots 5, 8, 9, 10 and 11, and E½;	613.32
Sec. 8, All;	640.00
Sec. 17, All;	640.00
Sec. 18, All;	642.60
Sec. 19, lot 1, S½ of lot 6, lot 7, NE¼ and E½SE¼;	410.73
Sec. 20, All;	640.00
Sec. 21, SW¼;	160.00
Sec. 28, W½ and W½SW¼SE¼;	340.00
Sec. 29, N½ and E½SE¼;	400.00
Sec. 30, E½NE¼;	80.00
Sec. 32, NE¼NE¼	40.00
Sec. 33, W½NW¼SW¼.	20.00
T.15S., R.12E.,	
Sec. 17, SW¼ and W½SE¼	240.00
Sec. 21, E½SW¼, SW¼SW¼ and SE¼;	280.00
Sec. 22, SW¼;	160.00
Sec. 27, NW¼, N½SW¼ and SE¼SW¼;	280.00
Sec. 28, N½NE¼, SW¼NE¼, W½ and W½SE¼;	520.00
Sec. 29, E½E½;	160.00
Sec. 32, E½E½;	160.00
Sec. 33, All;	640.00
Sec. 34, W½.	320.00
T.16S., R.13E.,	
Sec. 20, All;	640.00
Sec. 22, S½NW¼ and S½;	400.00
Sec. 26, S½NW¼ and S½	400.00
Sec. 28, All;	640.00
Sec. 30, All;	637.20
Sec. 32, All;	640.00
Sec. 34, N½ and SW¼.	480.00
T.17S., R.13E.,	
Sec. 2, All;	713.00
Sec. 4, lots 1, 2, 3, 4, 5, 6, 7, and 8, and S½;	676.80
Sec. 8, All;	640.00
Sec. 10, All;	640.00
Sec. 12, N½ and SE¼;	480.00
Sec. 14, All;	640.00
Sec. 22, N½, N½S½, SW¼SW¼, and SE¼SE¼;	560.00
Sec. 24, W½ and SW¼SE¼;	360.00
Sec. 26, N½.	320.00
T.17S., R.14E.,	
Sec. 6, lots, 3, 4, 5, 6, 7, 8, 9, and 12, E½SW¼ and W½SE¼;	436.26
Sec. 8, W½NW¼;	80.00
Sec. 18, lots 1, 2, 3, and 4, and NE¼.	322.40

BEST COPY AVAILABLE

T.19S., R.15E.,	
Sec. 2, E½ of lot 7, N½SE¼ and SE¼SE¼;	160.00
Sec. 12, N½ and SE¼;	480.00
Sec. 24, N½ and SE¼.	480.00
T.20S., R.15E.,	
Sec. 2, lot 2, SW¼, SW¼NW¼SE¼ and E½SW¼SE¼;	235.72
Sec. 4, lots 3, 4 and 6, SW¼NE¼, W½SE¼NE¼, S½NW¼ and SE¼;	413.27
Sec. 10, NE¼;	160.00
Sec. 12, E½ and SW¼.	480.00
T.21S., R.15E.,	
Sec. 14, NW¼;	160.00
Sec. 22, E½ and SW¼;	480.00
Sec. 26, N½ and SE¼	480.00
Sec. 28, NE¼;	160.00
Sec. 34, W½SE¼ and SE¼SE¼.	120.00
T.22S., R.15E.,	
Sec. 2, SE¼SE¼;	40.00
Sec. 12, lots 1, 2, 3, and 4, W½E½, E½NW¼, SW¼NW¼ and SW¼.	602.32
T.19S., R.16E.,	
Sec. 18, lot 1 of SW¼ and lot 2 of SW¼.	180.96
T.20S., R.16E.,	
Sec. 6, N½ and SW¼;	528.77
Sec. 8, All;	640.00
Sec. 18, All;	668.28
Sec. 20, N½N½ and S½;	480.00
Sec. 28, NE¼NE¼ and S½SE¼;	120.00
Sec. 30, SE¼NE¼;	40.00
Sec. 34, W½.	320.00
T.21S., R.16E.,	
Sec. 24, E½ and E½W½;	480.00
Sec. 30, lots 3 and 4 and E½SW¼;	163.57
Sec. 32, N½ and SE¼.	480.00
T.22S., R.16E.,	
Sec. 6, lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 14, and 15, and S½NE¼;	578.60
Sec. 10, NW¼;	160.00
Sec. 18, lots 1, 2, 3, 9, and 10, SE¼NE¼, E½SE¼ and SW¼SE¼;	417.58
Sec. 20, E½NE¼, SW¼NE¼, and SW¼;	280.00
Sec. 34, NE¼NW¼.	40.00
T.21S., R.17E.,	
Sec. 18, W½ and SW¼;	470.52
Sec. 20, All;	640.00
Sec. 26, SW¼NW¼, W½SW¼ and SE¼SW¼;	160.00
Sec. 28, All;	640.00
Sec. 30, All;	645.98
Sec. 32, All;	640.00
Sec. 34, All.	640.00

T.22S., R.17E.,		
Sec. 4, All;		639.36
Sec. 8, NE¼		160.00
	Total	31,957.24

MORENO PALEONTOLOGICAL ACEC

Mount Diablo Meridian

	Acres
T.13S., R.11E.,	
Sec. 34, SE¼;	160.00
Sec. 35, SW¼.	160.00
T.14S., R.11E.,	
Sec. 2, All;	777.48
Sec. 3, lots 1, 2, 3, and 4, and SE¼;	389.41
Sec. 11, All;	640.00
Sec. 12, W½;	320.00
Sec. 13, All;	640.00
Sec. 14, E½;	320.00
Sec. 24, N½ and SW¼;	480.00
Sec. 25, All.	640.00
T.15S., R.11E.,	
Sec. 1, lots land 2, S½NE¼ and SE¼;	320.77
Sec. 12, N½NE¼, SW¼NE¼, W½, W½SE¼ and SE¼SE¼.	560.00
T.14S., R.12E.,	
Sec. 30, lots land 2 (exclusive of Patent No. 1115099), lots 3 and 4, and E½W½ (exclusive of Patent No. 1115099);	134.84
Sec. 31, lots 3, 8, 9, 10, 11, 12, 13, and 14.	195.21
T.15S., R.12E.,	
Sec. 6, lots 2, 3, 4, 5, 6, and 7, S½NW¼, and SW¼;	383.29
Sec. 7, lots 1, 2, 3, and 4, W½E½, SE¼NE¼, E½W½ and E½SE¼;	497.88
Sec. 8, lots 3 and 6, and SW¼;	247.67
Sec. 17, lots 1, 2, 3, 4, 5, and 6, and N½;	538.29
Sec. 18, lots 1, 2, 3, 5, and 6, NE¼, E½NW¼ and NE¼SW¼;	396.16
Sec. 19, lots 11, 12, 13, and 14;	106.42
Sec. 29, W½W½;	160.00
Sec. 30, All;	538.04
Sec. 31, lots 1, 2, 3, 4, 5, 6, 7, 10, and 13;	274.93
Sec. 32, NW¼NW¼ and SE¼SW¼;	80.00
Sec. 35, lots 11, 12, 13, and 14.	160.70
T.16S., R.12E.,	
Sec. 1, W½SE¼ and SE¼SE¼;	120.00
Sec. 2, lots 3 and 4, SE¼SE¼NE¼, S½NW¼ and SW¼;	339.60
Sec. 12, NE¼	160.00
T.16S., R.13E.,	
Sec. 7, lots 3 and 4 and E½SW¼;	155.80
Sec. 17, N½NW¼ and SW¼NW¼;	120.00
Sec. 18, NE¼;	160.00
Sec. 22, S½NW¼ and S½;	400.00
Sec. 26, S½NW¼ and S½.	400.00
T.17S., R.14E.,	
Sec. 6, lots 3, 4, 5, 6, 7, 8, 9, and 12, E½SW¼ and W½SE¼.	436.36
Total	11,412.85

REFERENCES

USDI, Bureau of Land Management, 1984. Hollister Resource Management Plan and Record of Decision. Hollister, California

USDI, Bureau of Land Management, 1982. Panoche Hills Management Plan. Hollister, California

USDI, Bureau of Land Management, 1982-1986. Sensitive Plant Inventory for the Hollister Resource Area. Hollister, California

USDI, Bureau of Land Management, 1979-1982. Blunt-nosed leopard lizard and San Joaquin dune beetle inventories. Hollister, California

Chesemore, D.L. 1981. Blunt-nosed leopard lizard inventory. Unpublished report prepared under contract to the BLM. 143 pp.

O'Farrell, T. P. and P. McCue. 1981. Inventory of San Joaquin kitfox on BLM lands in the western San Joaquin Valley. Unpublished report prepared under contract to the Bureau of Land Management. 36 pp.

O'Farrell, T. P., P. McCue and T. Kato. 1981. Potential of BLM lands in western Fresno, and eastern San Benito and Monterey counties, California as critical habitats for the San Joaquin kitfox and blunt-nosed leopard lizard. Unpublished report prepared under contract to the Bureau of Land Management. 46 pp.

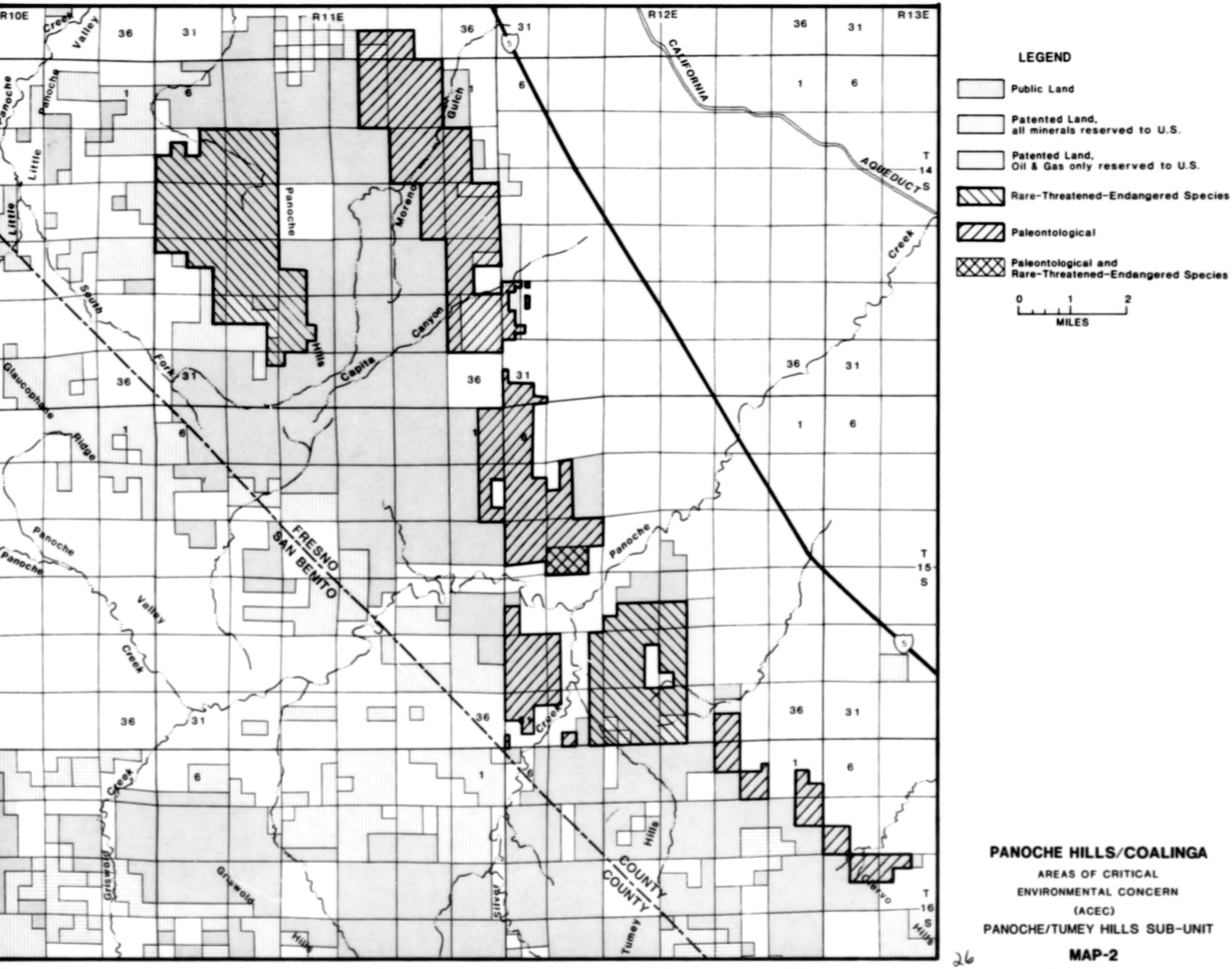
Staebler, A.E. 1981. Survey of the fossil resources in the Panoche and Ciervo Hills of western Fresno County, California. Unpublished report prepared under contract to the Bureau of Land Management. 173 pp.

Williams, D. F. 1985. Plant Productivity in a Desert Ecosystem Dominated by Giant Kangaroo Rats. Unpublished report prepared for the California Department of Fish and Game and California State University, Stanislaus. Final Report and MOU, 10 pp.

Williams, D. F. 1985. Letter to U. S. Fish and Wildlife Service on Proposed Listing of the Giant Kangaroo Rat.

Williams, D. F. and [illegible] Tordoff, 1986. Martin Ranch Endangered Wildlife Survey. Unpublished report prepared for the California Department of Parks and Recreation and California State University, Stanislaus. 22 pp.

BEST COPY AVAILABLE



PANOCHE HILLS/COALINGA

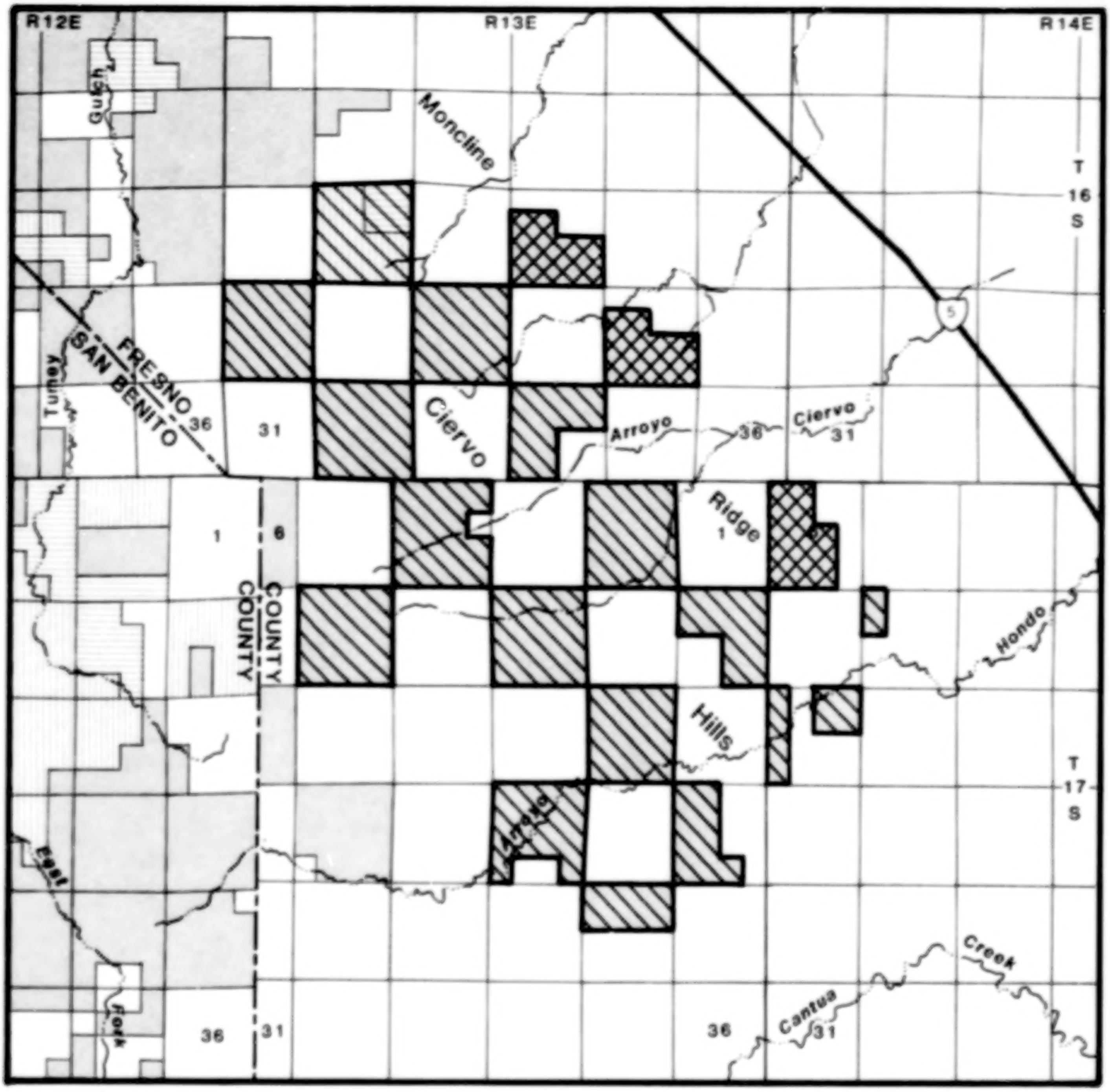
AREAS OF CRITICAL

ENVIRONMENTAL CONCERN

(ACEC)

PANOCHE/TUMEY HILLS SUB-UNIT

MAP-2



LEGEND

▩ Public Land

▥ Patented Land, all minerals reserved to U.S.

☐ Patented Land, Oil & Gas only reserved to U.S.

▧ Rare-Theatened-Endangered Species

▦ Paleontological and Rare-Threatened-Endangered Species

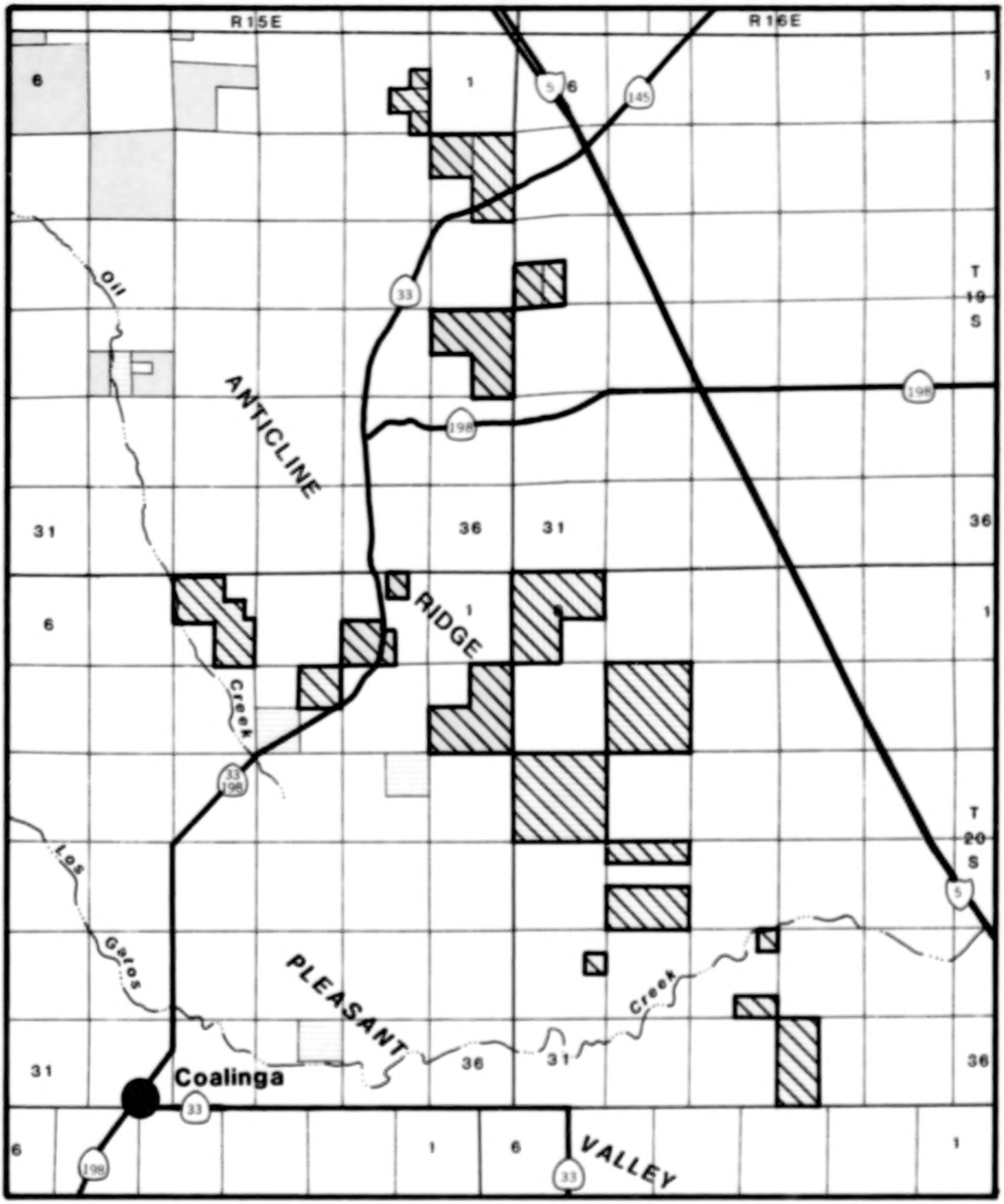
0 1 2
MILES

PANOCHE HILLS/COALINGA

AREA OF CRITICAL ENVIRONMENTAL CONCERN
(ACEC)

CIERVO HILLS/MONOCLINE RIDGE SUB-UNIT

MAP-3



LEGEND

- ▒ Public Land
- ▥ Patented Land, all minerals reserved to U. S.
- ▤ Patented Land, Oil & Gas only reserved to U. S.
- ▨ Rare-Threatened-Endangered Species

0 1 2
MILES

PANOCHE HILLS/COALINGA

AREAS OF CRITICAL
ENVIRONMENTAL CONCERN
(ACEC)

COALINGA NORTH AREA SUB-UNIT

MAP-4

END

FILMED

10/ 06/92